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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/462,283    03/29/00    KOOPS

H    2345/108

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IM52/0731

EXAMINER

AHMED, S

ART UNIT

PAPER NUMBER

1746

DATE MAILED:

07/31/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.

09/462,283

Applicant(s)

KOOPS, HANS WILFRIED PETER

Examiner

Shamim Ahmed

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 7-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6&7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement filed March 29, 2000 and January 05, 2000 contain duplicate listing of references. Accordingly, the duplicate references are Canceled out from one of the listing.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brenner et al (XP-002058725) in view of Eguchi et al (Japanese Journal of Applied Physics) and further in view of Vollenbroek et al (USP 4,704,347).  
Brenner et al describe a process to form an optoelectronic device, wherein a polymer is exposed by using an etching mask and then the unexposed regions are filled with monomers by gas-phase diffusion process (see page 159 and 161-162). Brenner et al fail to teach the monomer is organometallic compound. However, Eguchi et al teach a fabrication process of an optical waveguide with gradient index polymer, wherein monomers of organometallic compound with a lower refractive index are diffused into a gel containing substrate for low optical losses at the waveguide connection (page 2232). So, it would have been obvious to one having ordinary skill in the art to employ Eguchi

et al's teaching into Brenner et al's process for reducing the optical loss of the optical waveguide as taught by Eguchi et al.

As to claim 8, modified Brenner et al disclose that the polymer resist layer is polymethyl methacrylate (PMMA) but fail to teach the patternable polymer layer is composed of novolak. However, Vollenbroek et al teach that photoresist layer composed of novolak has an advantage over PMMA layer, such as novolak has a considerable higher resistance to etching plasmas than the PMMA (col.2, lines 47-50).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of claimed invention to employ Vollenbroek et al's teaching into the combined Brenner et al's method by replacing PMMA resist with novolak resist because novolak has considerably higher resistance to etching plasmas than PMMA as taught by Vollenbroek et al.

### **Conclusion**

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Baker et al (4,824,522) disclose a fabrication process of polymer waveguides, wherein the pattern is transferred through the polymer layer by exposing the layer to a reactive ion etching; Lebby et al (5,116,461) disclose a method, wherein an optical medium of polymer is etched to form trenches and Hammer et al (5,102,776) teach that novolak resist is more sensitive than PMMA (col.3, lines 61 – col4, line 3).

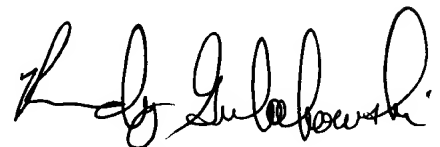
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (703) 305-1929. The examiner can normally be reached on M-F (7:00-5:30) Every Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (703) 308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Shamim Ahmed  
Examiner  
Art Unit 1746

SA  
July 28, 2001



RANDY GULAKOWSKI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700